

RDMA NETWORK INTERFACE CONTROLLER WITH CUT-THROUGH IMPLEMENTATION FOR ALIGNED DDP SEGMENTS

ABSTRACT OF THE DISCLOSURE

An RNIC implementation that performs direct data placement to memory where all segments of a particular connection are aligned, or moves data through reassembly buffers where all segments of a particular connection are non-aligned. The type of connection that cuts-through without accessing the reassembly buffers is referred to as a "Fast" connection because it is highly likely to be aligned, while the other type is referred to as a "Slow" connection. When a consumer establishes a connection, it specifies a connection type. The connection type can change from Fast to Slow and back. The invention reduces memory bandwidth, latency, error recovery using TCP retransmit and provides for a "graceful recovery" from an empty receive queue. The implementation also may conduct CRC validation for a majority of inbound DDP segments in the Fast connection before sending a TCP acknowledgement (Ack) confirming segment reception.